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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/649,969	08/28/2000	Lawrence Cary Gunn III	06618/692001/CIT-3277	8911

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EXAMINER

NGUYEN, PHILLIP

ART UNIT

PAPER NUMBER

2828

DATE MAILED: 07/19/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/649,969

Applicant(s)

GUNN III, LAWRENCE CARY

Examiner

Phillip Nguyen

Art Unit

2828

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 03 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-16 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-16 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Paul IP

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Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on ____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☒ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) ____.
- 4) ☐ Interview Summary (PTO-413) Paper No(s) ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 112

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1-16 are rejected under 35 U.S.C. 112, second paragraph.

There is no structure to support the meaning of “optical structure” as recited in claim 1.

Claim 1 recites, “a resonator structure” forming “a core”, “a cladding layer is formed of an active material”, and the “cladding layer configured to amplified optical energy”. They fail to provide any structural relationship as how to form a resonator structure. It is also not clear as how an optical portion forming a core. It is not clear as how a cladding layer formed of an active material configured to amplify optical energy in the core.

Claim 1 and 5 recite “formed” and “forming”. It is not clear as whether the claims should be treated as apparatus claims or method claims. The claims fail to clearly define in such a way to comply with 35 U.S.C. 112, second paragraph. Claim 5 recites, “said optically active portion” which is lack of antecedence.

With respect to claim 6, the claim is understood, a system as claim 5 wherein said semiconductor material is one of silicon or gallium arsenide.

Claim 7 recites, “pumping laser pumps the system to produce spontaneous emission from the ore” which is indefinite.

Claims 8-12 recite “a method”. The claims fail to further limit the “method” function or operation or application. The claims are written in such a way that some claim language cannot be understood. See claims 10 and 11.

The claims also fail to provide any means or apparatus for performing the method steps as recited in the claim. It is not clear as how or what the method steps are performed either by mental function or operation by any structural means. Claims 9-12 recite different limitations without the structural recitation and relations which render the claims vague and indefinite.

Claims 9 and 10 recite, “said amplifying” which is lack of antecedence.

Claim 11 recites, “resonator is a of the disk resonator” which is indefinite.

Claim 12 recites, “its optically active layer” which is lack of antecedence.

Claims 13-16 are confusing, vague, and indefinite. The claims fail to provide any structural limitations for performing the method steps as recited in the claims. It is not clear as whether the method steps are mental steps or method steps performed by any means in order to provide the functions as recited in the claims. The claims fail to recite any means or structural for performing the method steps which render the claims vague and indefinite.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claim 1-10 and 16 are rejected under 35 U.S.C. 102(b) as being clearly anticipated by Po (4,852,117). Referring to claim 1, Po discloses an optical waveguide amplifier comprising a resonator structure having a core, cladding layer, which is made of active gain material therefore the cladding material is configured to amplify optical energy in said core (see claim 27).

Referring to claim 2, Po shows that the optical waveguide amplifier includes a laser pump, in Figures 4 and 6. Referring to claim 3, Po discloses that gain material can be neodymium and erbium (see column 6, lines 49-52). Referring to claim 4, Po teaches that an effective path length of the pumping is based on an optical path length that is increased by the amplification (see column 17, lines 43-55).

With respect to claim 5, it is understood that the optical portion forms the core where Po discloses a core is made of semiconductor material (see column 2, lines 54-64). Therefore, it is inherent that the optically active portion is formed of the semiconductor.

With respect to claim 6, the claim is understood that a system as in claim 5 wherein said semiconductor material is one of silicon or gallium arsenide.

Referring to claim 7, Po shows that the pumping laser pumps the system to produce spontaneous emission from the core (see column 12, lines 55-64).

Referring to claim 8, in order to make the optical amplifier work, light must be introduced into an optical resonator. Po discloses a method which light is amplified in the optical resonator (see column 2, lines 40-43).

With respect to claim 9, the claim is understood that the amplifying comprises amplifying the light until spontaneous emission is caused. Since Po discloses the current provided by the

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power supply maybe adjusted to increase the pumping light energy to produce a gain from spontaneous emission in the pumped cavity (see column 12, lines 57-61).

Referring to claim 10, Po discloses the amplifying comprises adding a pump to a doping in a core portion of the optical resonator (see column 3, lines 22-27).

Claim 13 and 15 are rejected under 35 U.S.C. 102(b) as being anticipated by Ford et al. Ford teaches a method of sensing rotation comprising introducing light into an optical resonator, rotating the optical resonator, and detecting a wavelength dependence caused by the rotation to detect some characteristic of the rotation (see column 1, lines 49-53).

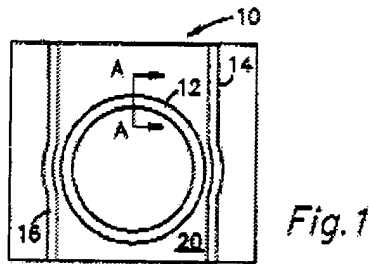
Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over Po in view of Ford et al. (5,438,639).

Referring to claim 11, Po discloses all the limitations in claim 8 but fails to show that the resonator is a disk resonator. Ford discloses the resonator having a ring shape as shown in Figure 1.



It would have been obvious to the one of ordinary skill in the art to modify the resonator as Po by using disk resonator as taught by Ford.

Claim 14 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ford et al. in view of Sanders (5,018,857). The claim requires a method of sensing rotation which includes a method of detecting intensity. Sanders shows a method of detecting an intensity of light (column 6, lines 49-52). For improvement of Ford, it would have been obvious to the one of ordinary skill in the art to add a method of detecting intensity like Sanders to a method as taught by Ford.

Citation of Pertinent References

4. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

The patent to Po discloses Optical Waveguide Amplifier and Laser, U.S. Patent No. 4,852,117

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The patent to Ford discloses Ion-Beam Deposited, Gain Enhanced Ring Resonators, U.S. Patent No. 5,438,639

The patent to Sanders discloses Passive Ring Resonator Gyro with Polarization Rotating Ring Path, U.S. Patent No. 5,018,857

The patent to Waars discloses Optical Amplifiers Providing High Peak Powers with High Energy Levels, U.S. Patent No. 5,933,271

The patent to Ishiguro discloses Fiber Optic Amplifier, U.S. Patent No. 5,125,066

The patent to Bazzocchi discloses Twin Coupler with Mode Scrambling for Multimode Pumping of Optical Amplifier, U.S. Patent No. 6,295,161

Communication Information

5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Phillip Nguyen whose telephone number is 703-305-4966. The examiner can normally be reached on Monday to Friday from 8:30 AM to 5:30 PM

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, PAUL IP, can be reached on (703) 308-3098. The fax phone number for the organization where this application or proceeding is assigned is 703-308-7722.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0658.



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